

THE MOTOR AGE

THE AUTOMOBILE AUTHORITY OF AMERICA

VOL. II.

CHICAGO, MARCH 22, 1900.

NO. 2.

ENTERED AT THE CHICAGO POST OFFICE AS SECOND-CLASS MATTER.

THE MOTOR AGE is published every Thursday by THE CYCLE AGE COMPANY, at 324 Dearborn St., Chicago.
Eastern Office: 1426 and 1427 American Tract Society Building, 150 Nassau Street, New York City.
Subscription price in the United States, Canada, and Mexico, \$2.00 per year; foreign countries (in postal union), \$4.00 per year, payable invariably in advance.
Advertising rates on application. Copy for changes in advertisements must be in hand the Friday previous to publication to insure insertion.

LEADING CONTENTS

	PAGE		PAGE
The Hertel Motor-Carriage —An illustrated description of a vehicle which embodies many features common to bicycles.	33	office.	50
French Electric Vehicles —An illustrated description of a line of vehicles with a unique type of motors.	37	A Trip to the Klondyke —Account of the plans and preparations of two chauffeurs for their trip to Dawson City.	51
The Majert Accumulator —Description of a French storage battery with illustrations of its parts and methods of manufacture.	39	Motor-Vehicle Rights on Highways —Legal status of the case of a man indicted for causing a death by frightening a horse with his auto.	53
Troubles of a Motorist —An interview showing the innate viciousness of the small boy and something about advertising.	43	Locomotion of the Future —The sensations of an automobilist and a prediction as to future travel.	54
Great Trans-Continental Road —The plans of the editor of the Cosmopolitan for national highway.	45	General News and Comment —An automobile thief catcher, motor-vehicle in the Soudan, strike at Naples, and other news.	56
A Progressive Briton —The speech of a councilman who was opposed to limiting the speed of motor-vehicles.	46	News of the Motor Industry —Detroit factories busy, veto for an automobile ordinance, a warning to makers, and other news.	58
Problems Worked Out —Illustrated descriptions of the week's budget from the patent		Motocycle and Motor Paced Racing —Notes of the racing game in America for the coming season.	62

THE HERTEL MOTOR-CARRIAGE

DETAILED DESCRIPTION OF THE GASOLINE RIG MADE BY THE OAKMAN MOTOR VEHICLE CO. OF GREENFIELD, MASS.

Among the motor-vehicle concerns that have realized the importance of making immediate progress in the business and of not waiting to get into position to turn out vehicles by the thousands before beginning active operations, is the Oakman Motor Vehicle Co. of Greenfield, Mass.

On the occasion of a recent visit of a staff representative of the Motor Age to Greenfield, he found the company occupy-

ing a brick factory of moderate dimensions, but with room for enlargement, and found therein a lot of fifty vehicles in process of construction. A still larger number have been sold and are now in operation. The vehicle made by the company is of a distinctive type and is well known to all who have followed the progress of the automobile industry in this country, as the Hertel carriage. Mr. Her-

tel, the inventor of the carriage, is in charge of the works.

A Distinctive Type

The most striking feature of the carriage, of which, so far, only one model has been turned out, is the front wheels, which, as will be seen by reference to the accompanying illustration, are of the distinctively bicycle type in almost every particular. The wheels are separately set in forks of the usual bicycle construction, except for the fact that each fork is provided with a spring, the construction of which can most easily be understood by an inspection of the engraving.

Spring Steering Controller

The connection between the two steering wheels is made at the top of the forks where a spiral spring attachment tends to keep the two wheels in such a position that the carriage will be driven in a straight line, relieving the driver from constantly holding on to the steering lever and obviating the necessity of having any complicated mechanical device for preventing the jiggling of the steering lever and wheels. The rear wheels are likewise of bicycle construction, and, like the front wheels, are fitted with direct spokes. The use of direct spokes in the rear wheels as made possible by the fact that the power is not transmitted through the hubs or spokes at all, as will be explained a little later on.

More Bicycle Methods

The frame of the vehicle also follows the methods hitherto peculiar to bicycle factories, being made of steel tubing connected by forgings. This frame has practically no wood in it, the dashboard, panels and back being made of sheet metal. Still further following in bicycle lines, this frame is coated with bicycle enamel which is baked on. In speaking of the reasons for this Mr. Hertel said:

Reasons for Using Enamel

"What is my reason for using sheet metal and enamel? For one thing I can get the same strength out of metal with less weight. Besides, in a gasoline vehicle there is always the possibility of the operator being sufficiently careless to allow a supply of gasoline to spill over the mechanism with the result that it takes fire.

With a body of wood, painted and varnished, the result would be that the body would, at the very least, have to be re-finished. With a metal body finished with enamel, the only damage would be the accumulation of a little soot which can be easily wiped off.

Motor Vehicles Ill Treated

"Moreover, we have found, as a rule, that owners of automobiles do not treat them as carefully as they would if they were the ordinary horse drawn carriages. In many cases the owner has no man to look after his vehicle, and, after a ride in the mud or slush, thinks it sufficient to wipe off the carriage with a wet rag. Of course we do not recommend that any one give our vehicles such treatment, but we do know that enamel baked on will stand such usage far better and far longer than any paint and varnish that was ever put on a carriage. These are the reasons that lead us into this extra expense."

In the mechanical work done on the vehicles, the Motor Age representative found the most workmanlike methods followed.

Motor Mechanism

The gasoline motor is of the horizontal two cylinder, four cycle type—cast in one piece—and has a comparatively low compression—forty-two pounds to the square inch. These cylinders have a bore of $4\frac{1}{4}$ inches and a stroke of $5\frac{1}{2}$ inches. They are water cooled, but the water jacket surrounds the cylinders for a space only a little more than the stroke of the piston, enough, according to Mr. Hertel, to keep the cylinders sufficiently cool for proper lubrication. In this respect he has followed the practice of a number of European constructors. Each cylinder is provided with a muffler, one of which is used to heat the air for generating gas.

Transmission Gearing

The ignition is made by means of an electric current furnished by a small storage battery, to start the engine, after which the battery is cut out by a switch by the driver and the current is then supplied by a dynamo actuated from the fly wheel by means of a friction pulley.

The two piston rods are connected to one crank pin. The crank shaft is connected to a countershaft by means of gear wheels

having $1\frac{1}{2}$ inch faces, on which the teeth are helically cut, for the purpose of preventing backlash with its accompanying noise and wear. The countershaft is fitted with a differential gear and carries the speed changing gears which are always in mesh and which are actuated by clutches. From the end of the countershaft, which carries a twenty-four pound fly wheel, the power is transmitted by two small grooved friction pulleys, $3\frac{1}{2}$ inches in diameter, which can be thrown in or out of internal engagement with a leather covered friction ring which is carried on short arms supported on the rims of the

under the seat, also in the second illustration. This tank has capacity for two gallons of fuel oil, which, Mr. Hertel claims, will run the vehicle for seventy-five miles. The proper mixture of gasoline vapor and air is obtained by passing the former through a tube around which is sleeved another tube, the two having holes for the admission of air which is varied in amount according to the size in the openings which are, in turn, regulated by a slight turning of the outer sleeve. The tank on the right hand side carries the supply of water for cooling the motor and has a capacity of six gallons.



HERTEL MOTOR CARRIAGE.

rear wheels of the carriage, an arrangement which will be readily understood by referring to the second illustration showing the motor and transmission mechanism of the vehicle, as it is shown when the metal back of the carriage is raised in the manner provided for examining these parts.

These grooved friction pulleys are slidably mounted on their shafts to provide for any getting out of true on the part of the wheels and friction rings.

Hydro Carbon Supply

The carburettor is contained within the gasoline tank, shown at the left hand side,

The motor is started by a forward and back movement of the controlling lever, which is at the left hand of the driver. A turn of the handle on the top of this lever regulates the supply of explosive mixture that is admitted to the engine cylinders and thus controls the speed of the motor. A backward movement of this same lever performs the double function of disengaging the driving mechanism from the motor and of applying the brakes. Another lever controls the speed changing gear, which with the variations of the motor give almost any speed up to twenty miles an hour. Thus every function necessary

to perform, except steering and altering the speed changing gear, is controlled by the one lever.

Spring Support

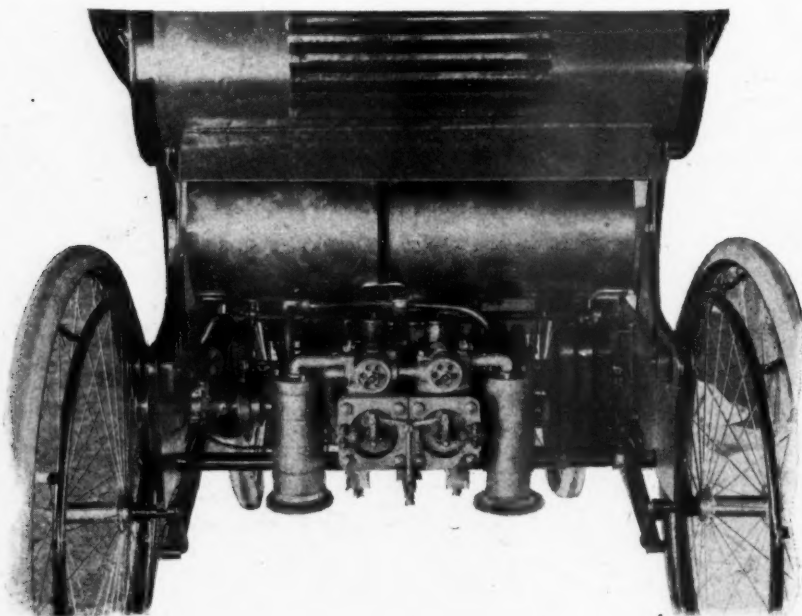
The front wheels, as has been stated, are separately provided with springs in the forks in which they are set. The rear wheels are, in similar manner, each provided with leaf springs in which latter the carriage body is supported. In this manner each of the four wheels has a separate, spring governed action, permitting the vehicle to accommodate itself to the

wheels are twenty-eight inches in diameter and the rear ones thirty-six, while both are fitted with two-inch tires.

The weight of the vehicle, without passengers, is about 500 pounds. The price is \$750. The vehicles are made in their entirety, with the exception of the tires and a very few of the minor parts, in the Greenfield factory.

Future Plans

In speaking of the future plans of the company, Mr. Hertel stated that it was their intention to establish a depot some-



MOTOR-MECHANISM OF HERTEL CARRIAGE—BACK COVER RAISED.

inequalities of the road in a manner that is at once unique and effective, and one which has not been adopted by any other manufacturer.

Some Dimensions

One peculiarity of the vehicle is that the front and rear wheels have different gauges. That of the front wheels is thirty-five inches and that of the rear forty-six. The wheel base is forty-seven inches. The total length of the vehicle is $6\frac{1}{2}$ feet and the total height five feet. The front

where between New York and Philadelphia where, in the future, their vehicles would be assembled, the manufacturing being done, as in the past, at Greenfield. The reason for this, he said, was that the company might have offices where they would be within easy reach of their customers in order to make prompt shipments, have a convenient depot for supplies and for making any necessary repairs and where their vehicles could be inspected without necessitating the tedious trip to Greenfield.

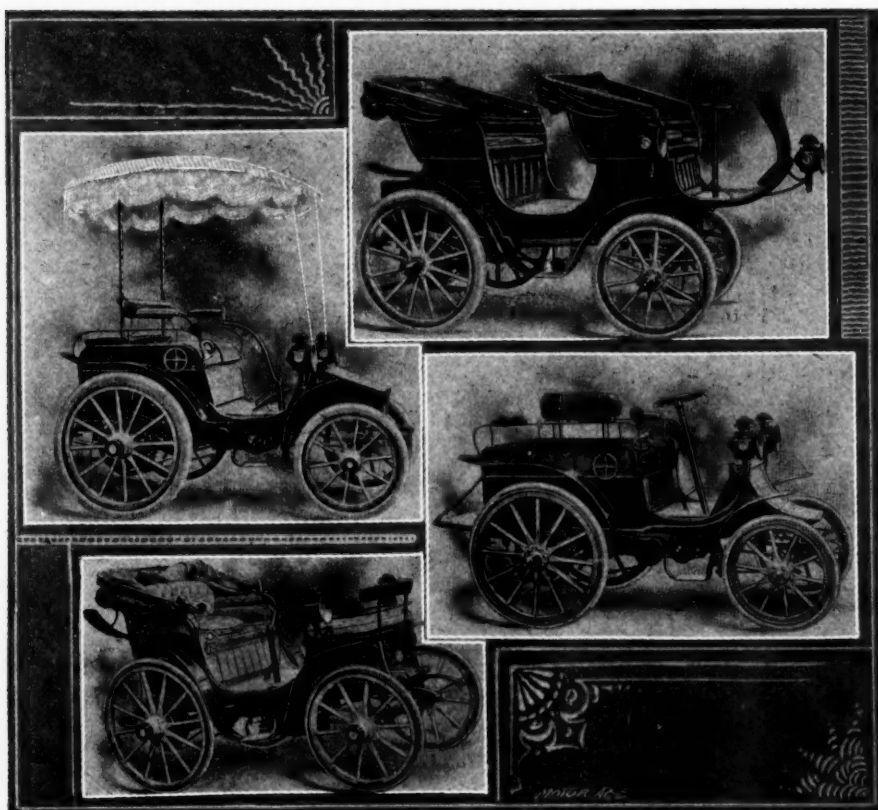
FRENCH ELECTRIC VEHICLES

DESCRIPTION OF FRENCH VEHICLES WHICH ARE FITTED WITH MOTORS OF UNIQUE DESIGN
—HAVE A WORKING AREA OF FIFTY MILES—COST OF CURRENT IN PARIS

Electric vehicles are scarce in France.

One of the companies which is marketing them—the “Societe des Voitures Electriques et Accumulateurs”—goes into many elaborate explanations in its catalogue of the advantages of electrics over

minimum of machinery is needed in the transmission of power and that the batteries can be recharged from almost any electric light plant furnishing a current of 100 to 110 volts. In the carriages which are illustrated a single motor is used,



gasoline-driven vehicles, completely ignoring the fact that there is anything like a steam carriage. They lay particular stress on the absence of noise, odor, vibration and dirt, which latter, they say naively, is very distasteful to fashionable people and to ladies who wear expensive toilets—a feature which doubtless does appeal to the “grande dame Francais.”

Attention is called to the fact that a

transmitting its power to a differential gear on a countershaft, on the ends of which are sprocket wheels connecting with sprocket wheels tied to the spokes of the rear wheels.

Motor Construction

The most noteworthy feature of the vehicles is the motor which goes by the name of “cinq et trois font huit” (“five and three make eight”—a name bestowed by

an electrical magazine, *L'Industrie Electrique*). This motor is made with two unequal induction coils working on the same sheet-iron core and having two collectors. For a given angular speed in a given magnetic field, the electromotive force developed by one of the coils is represented by five and the other by three. The object of the combination is to introduce the coils into the circuit according to the speed desired.

Motor in Action

In starting, the two coils are coupled in tension with a resistance coil from the battery and the motor starts with the maximum resistance to the current. At the higher speeds this resistance is gradually done away with, introducing the coils successively and then in combination until the greatest angular speed is obtained without varying the field.

The motor is also arranged so that it can be converted into a dynamo at the will of the driver, so that in coasting down grades it can be used to replenish the battery, or can be used in this same manner as a brake, thus making the vehicle more effective, especially for touring in hilly regions.

Elements Grouped in Series

Owing to the construction of the motor the elements of the battery are all grouped in series. In this construction the company claims the advantage that the deterioration of one or more of the cells will have no effect on the battery's efficiency beyond a slight diminution in the speed of the vehicle, while, with variable couplings, the deterioration of one or two cells in a group will lead to trouble with the entire group and a weakening of the whole battery.

Batteries of Light Weight

The company claims a very light weight of battery for its capacity, giving the discharges as 9.27 ampere hours for each

pound of weight in the plate at the $4\frac{1}{2}$ hour discharge rate. The mean voltage for the complete discharge is given as 1.95 volts. The discharge rate is slightly under 6.5 ampere hours for each pound of the complete element.

City carriages are equipped with batteries weighing 550 pounds per ton of total weight, which are sufficient, it is claimed, for covering a distance of fifty miles on good roads.

Carriages are fitted with volt meters and ammeters and a cut-off for the current when batteries are fully charged.

Cost of Current in Paris

At the usual rates charged for current in Paris, according to the statement of the makers, these carriages cost for "juice" from ninety cents to \$1.20 per run of fifty or sixty miles under the best conditions. It is added that these prices confirm what has been stated before, that the electric vehicle is cheaper than that utilizing gasoline. With this statement it should be remembered, however, that the prices of all petroleum oils are notoriously high in France, owing to the revenue taxes.

Other Features

The vehicles are fitted with electric lights and have a key, by the removal of which the current is cut off, making it impossible for anyone but the driver to start the vehicle. They are provided with both electric and foot brakes. The latter works on the front or rear wheels according as the carriage is moving forwards or backwards.

The company claims to have constructed vehicles which will travel over average French roads a distance of ninety-five miles and that their regular commercial vehicles will cover fifty miles. This latter distance is said to be as great as that separating towns having electric light plants where the vehicles can be recharged.

THE MAJERT ACCUMULATOR

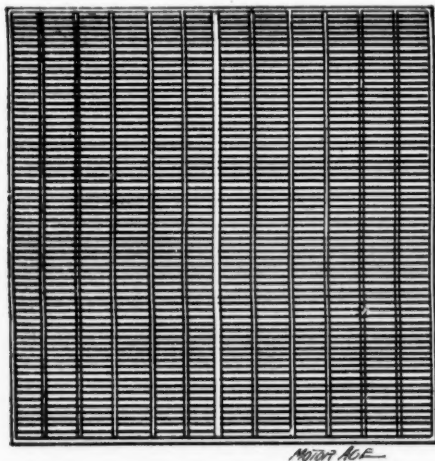
DESCRIPTION OF A FRENCH STORAGE BATTERY FOR WHICH GREAT EFFICIENCY IS CLAIMED, TELLING HOW IT IS CONSTRUCTED

The characteristic of the Majert accumulator, according to La Revue Technique, is in its positive plate.

The negative plate, of the Faure type, will, however, be first described. It consists of a grid, having on it thin ribs, varying according to the use to which the plate is to be put. For stationary batteries, the surface of the plate is formed of stout vertical ribs between which run thin inclined ribs. To assure strength, the thin ribs on opposite sides of the grid, are inclined at opposite angles.

Wedge Shaped Ribs

Looking at the sectional view of the negative plate, it will be seen that the ribs taper towards their edges, giving them wedge-shaped sections. To retain the paste on the grid more firmly, the grid, after the paste has been inserted, is rolled in such a manner that the edges of the wedge-shaped ribs are turned up, forming half enclosed shelves. This method of construction permits a certain twisting of the plates without displacing



Negative Plate for Traction Use.

the paste. The paste is made of pure litharge mixed with sulphuric acid to make it adhere to the grid.

The positive plate, which is of the Plante type will now be considered. It consists of a rolled lead plate formed



Majert Positive Plate.

without the addition of the oxide. The end sought by the inventor has been to make a plate that will allow of rapid charging and discharging. The first necessity of such a plate is to have a large surface, but, on the other hand, on as small a base as possible. In other words, it is necessary to increase, or multiply, the actual surface of the plate as much as possible.

Since Kabbath's time it has been known that the best manner in which to obtain this result is to corrugate the plate. This method has been employed with success by the factory of Hagen.

Majert's Method

Majert, himself, prefers this method and has succeeded in securing a greatly increased surface. Contrary to the usual custom, he has made grooves, very narrow and relatively deep, separated by narrow ribs. For example, for elements designed for discharges lasting for from one to three hours he has used grooves six millimeters wide, five deep and ribs four millimeters thick. The plate looks like the bottom of a mushroom.

A great amount of surface is thereby obtained without the use of too much metal and without too much weight.

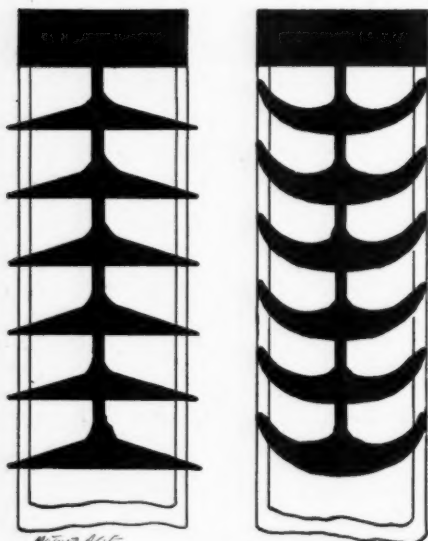
Results Obtained

The following table* gives an idea of the results obtained:

	Plate dis- charging in $\frac{1}{4}$ to 1 hour.	Plate dis- charging in 1 to 3 hours.
Number of grooves per centimeter	15	10
Depth of the groove in millimeters	4.5	5.5
Thickness of center in millimeters	1	1
Thickness of whole plate in millimeters	10	12
Multiplication of surface, times	14.25	12
Weight per square decimeter in grammes	600	770

Can Not Cast Grids

It is impossible to obtain cast grids of this character as the molten metal will



Section of Negative Plate

Section of Negative Plate After Rolling.

not fill all the interstices of the mould, and, moreover, cast lead does not have the same homogeneous quality as rolled lead.

It has been impossible, hitherto, to obtain a multiplication of the surface amounting to more than eight or nine times the original amount, while Majert has obtained sixteen or eighteen times, with considerably less weight.

Attempts have been made to make grids by the use of hydraulic power but the experiments have not proven successful and the expense has been too great to give promise of commercial success. Moreover a multiplication above six or eight times has not been effected by this means. The matrices are exceedingly expensive and difficult to construct.

Made on a Planing Machine

Majert has employed another process. He uses a planer which raises a thin rib without separating it from the body of the plate. The planer is so shaped that it raises the rib perpendicular to the plate. By means of an automatic feed the planer cuts the ribs uniform as to size and distance apart. It would appear that the mechanical difficulties incident to this construction would be too great to be overcome and so this method has not hitherto been used. As stated above, the planer turns the ribs at right angles to the plate after the manner of a plow-share.

Lead Hard to Hold

At the side of the planer is a little wheel which rolls over the unworked portion of the plate with a constant pressure. The object of this roller is to hold the lead plate close to the bed of the planing machine and thus prevent the rib from being completely detached from the lead plate. Without the roller it would be necessary to provide some method of holding the lead plate firmly, a difficult matter with such a soft metal.

The bed of the planing machine is adjustable in different ways to allow of the accurate working of the lead plate. One adjustment allows of varying the depth of the grooves, and a second, the angle of the ribs to the edge of the plate. Ordinarily the ribs are cut at an angle of seventy degrees with the edge of the plate. The ribs on the two faces of the grid run at opposite inclinations. A third adjustment allows of the regular progression of the bed of the planing machine to cut new ribs. When one side of the plate is done it is turned over and the other side cut in like manner.

Another Construction

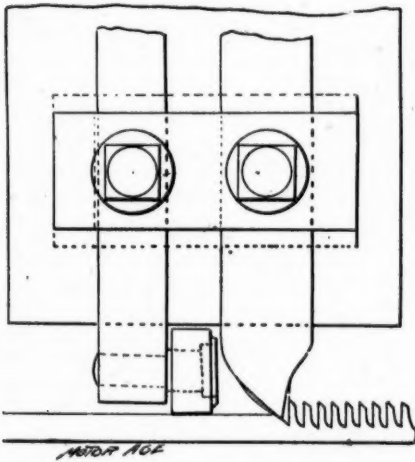
In the more recent grids the ribs on one side have been run horizontal and those on the other vertical.

*1 millimeter equals .03937 inches.
1 centimeter equals .3937 inches.
1 decimeter equals 3.937 inches.
1 gramme equals .032 ounces.
1 kilogramme equals 2.2 pounds.

In plates designed for heavy work, particularly those for automobile use, it is necessary to leave a core of metal in the center of some millimeters in thickness. The planing machine can work plates of nine square decimeters in size. In one minute the machine turns up ninety ribs.

Rapidity of Work

A plate of type A,5 of 5.3 square decimeters, has 380 ribs. One of the faces



Planer Used by Majort.

is completed in 263 seconds and the whole plate, including turning it over on the planing machine, in ten minutes. One machine can turn out sixty plates a day and, being automatic, one man can attend to two machines and he is, therefore, capable of turning out 120 plates a day. It will be seen, therefore, that the economy in the work compares favorably with that of cast plates.

Forming of Plates

Having considered the mechanical construction of both positive and negative plates, it is now in order to look into their forming.

The positive and negative plates are formed apart, with the counter-electrodes dead, having the advantage of "de-chloriding" the plates, which, as is well known, is of great importance. The ordinary electrolyte is used. After this treatment, the positive plate is covered

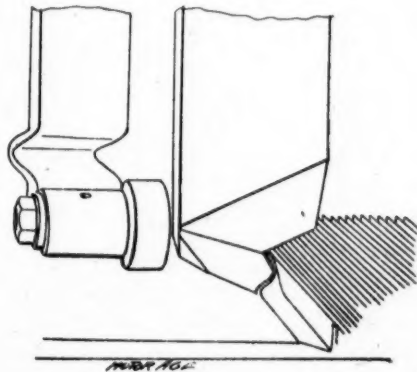
uniformly with peroxide of lead, in the crystalline state, to the thickness of a sheet of paper, on the edges, as well as in the grooves. It will be seen that the current, entering most easily the narrow edge of the ribs, the oxide will tend to be carried towards the plate, and then, the edges having become oxidized, the current passes uniformly over the whole plate.

Various Advantages

From the accumulator point of view there are several factors which are interesting to consider, first of all the capacity, which, for traction, is of great importance; in the second place, the production, which, in this case, is less important; and finally, the most important factor of all, which is the life of the element.

Life of the Plates

Considering the life of the plates, it will suffice to note the results obtained by the great Berlinger Strassenbahn Gesellschaft, which has 100 batteries of this kind working which contain 20,000 positive plates. A small number of these plates have been replaced owing to accidental short circuiting, but only eighteen of them have so deteriorated in their regular service as to necessitate changing—which makes less than one per thousand. This style of accumulator entirely meets the requirements of street cars, omnibuses or automobiles, where a rapid charge is



View of Plate During Cutting of Ribs.

necessary. The table below, which gives the results guaranteed by the manufactu-

rers, for traction batteries, shows their advantages:

Type.	Maximum capacity in ampere hours.	Discharge		Maximum charging capacity in amperes		Weight of the elements with electrolyte in kil- ograms.
		In heures	In amperes	At a constant voltage of 2.55	At a constant intensity.	
1A4	15	$\frac{1}{4}$	60	84	24	9.7
1A4	17	$\frac{1}{2}$	14	84	24	9.7
1A4	11.5	$\frac{1}{4}$	25	84	24	9.7
1A4	21	1	21	84	24	9.7
1A5	21.8	$\frac{1}{4}$	96	121	35	15
1A5	24.5	$\frac{1}{2}$	49	121	35	15
1A5	27	$\frac{3}{4}$	36	121	35	15
1A5	30	1	30	121	35	15
2A4	30	$\frac{1}{4}$	120	168	48	18.46
2A4	34	$\frac{1}{2}$	64	168	48	18.46
2A4	37.5	$\frac{3}{4}$	50	168	48	18.46
2A4	42	1	42	168	48	18.46
2A5	43.6	$\frac{1}{4}$	174	241	70	28
2A5	49	$\frac{1}{2}$	98	241	70	28
2A5	54	$\frac{3}{4}$	72	241	70	28
2A5	60	1	60	241	70	28
3A4	45	$\frac{1}{4}$	180	252	72	26.7
3A4	51	$\frac{1}{2}$	102	252	72	26.7
3A4	56.2	$\frac{3}{4}$	75	252	72	26.7
3A4	63	1	68	252	72	26.7
4A4	60	$\frac{1}{4}$	240	336	96	34.3
4A4	68	$\frac{1}{2}$	136	336	96	34.3
4A4	75	$\frac{3}{4}$	100	336	96	34.3
4A4	84	1	84	336	96	34.3
3A5	65	$\frac{1}{4}$	258	360	105	41
3A5	73.5	$\frac{1}{2}$	145	360	105	41
3A5	81	$\frac{3}{4}$	108	360	105	41
3A5	90	1	90	360	105	41
4A5	87	$\frac{1}{4}$	344	480	140	54.1
4A5	98	$\frac{1}{2}$	196	480	140	54.1
4A5	108	$\frac{3}{4}$	144	480	140	54.1
4A5	120	1	120	480	140	54.1

An Immense Equipment

The Berlin company, already mentioned, will shortly equip 290 new cars with four axles, with a total of 58,000 elements, making 200 elements to each carriage. Each element contains three plates, two negative and one positive, and each is enclosed in a hard rubber cell, 234 millimeters wide and 255 high and 40 milli-

meters thick. The thickness of the wall of the cell is 12 millimeters. The positive plates have 11 ribs to the centimeter, their depth being 5.5 millimeters. To support the positive plate in the ebonite box, there are ribs on the interior. On the exterior there are ribs which serve the double purpose of giving strength to the cell and of supporting the insulating plates between the positive and negative plates. The advantage of these ribs consists in permitting circulation of the electrolyte in the box. The latter is not closed by a cover.

Assembling of Elements

Seventeen elements are placed together in a wooden tray of the following dimensions: 495 millimeters by 366 millimeters by 1,020 millimeters. The thickness of the partitions is 30 millimeters. Particular care is taken to render these trays water tight. The batteries are placed under the seats and to effect economical insulation, linoleum has been used, which has been found excellent for this purpose.

Value of the Battery

It will be seen, from the foregoing description, the value of these batteries. The rapidity with which they can be charged, their high power of discharge, and their strength, which permits the lack of care necessary with the old styles of batteries, making them suitable for use in many fields. Comparative tests have been made with other styles of batteries, the results of which show conclusively the superiority of the Majert battery.

Granting that this battery, in common with all storage batteries, is unsuited to many uses, still we feel we have rendered a signal service in pointing out its merits, concludes La Revue Technique.



TROUBLES OF A MOTORIST

E. A. McDUFFEE, THE MIDDLE-DISTANCE CYCLE CHAMPION ILLUSTRATES THE TROUBLES GROWING OUT OF THE SMALL BOY'S CURIOSITY—DANGERS OF FOLLOWING MOTOR PACING—A CONJURER'S TRICK WITH AN AUTOMOBILE

Philadelphia, March 19.—“This is better than a diet of snowballs,” said E. A. McDuffee to the Motor Age representative last week. The erstwhile middle-distance cycle champion is advertising a certain prominent brand of cigarettes through the medium of a locomobile, and was standing in a sunny corner out of the wind to warm up a bit, meanwhile keeping his weather optic upon the omnipresent small boy who would persist in handling the various portions of the vehicle, and ever and anon swooping down upon the little rascal when his curiosity promised to result in trouble.

A Small Boy's Trick

“Those little beggars 'll kill me yet. My brother left his machine next the sidewalk in Boston a couple of weeks ago while he entered a store to make a purchase. He came out just in time to see it backing diagonally up the curb and making a bee line for a thousand-dollar plate-glass window. He managed to shut her off, however, before she reached the window, but both hind wheels were wrenched out of true. That cost him \$16.

Racing Still Has Attractions

“No, I haven't quite made up my mind yet whether to abandon the bicycle track for good. Of course, I realize that I'll have to do it soon; but there's a race or two left in me yet, and if there's any money in the game I may conclude to get into it again. I have an excellent chance with the Locomobile people, and I am in doubt whether it would not be foolish for me to throw up a sure thing for an uncertainty. While I pulled in \$5,500 altogether last year, I'm not so sure that I could repeat the trick the coming season.

“Take your hand off that lever, you blankety-blank idiot! (There's something coming to that kid if he don't keep away from that machine.)

“I see Jimmy Michael has sold out his hat-racks and is coming back to the cycle-racing track once more. There's money in a race with the midget and I may try to connect with him. Pace following behind motors is becoming constantly more dangerous, and the average man can't realize the strain a rider undergoes when engaged in a hot race. The contestant knows that a mix-up or a break-down will perhaps do for him.

Dangers of Motor Pace

“I'd rather go down five times behind quints and sextets than mix it up once with a motor machine. There's not only the machinery to tear up you, but there's a boiler to burst, with 150 or 200 pounds pressure, not to mention a gasoline tank that's just as likely as not to explode in the event of a tumble. The present-day pace-follower, you see, must take his chances of not only being scraped, pounded and ground to death, but of being roasted and boiled as well. Wait a minute!”

What Happened to the Boy

Mac was back in about two minutes, with a red face, upon which there sat a look of satisfaction.

“That kid won't monkey with her again in a hurry,” said he. “Let's see. Where was I? Oh, yes—about the danger of pace-following. A man who engages in that sport takes his life in his hands, and those who think that the pace-follower is too well paid should stop and think a bit.

“I will stay in Philadelphia the balance of this week, and if the weather remains good I expect to run my machine to Baltimore and Washington, and after a week or two in those cities will probably run her back again and down to Atlantic City.”

The Trolley Left Behind

On Thursday last this city was visited by the heaviest snow storm of the season.

About midday the Motor Age representative was crossing Market Street Bridge in a trolley car. The length of the approaches and the bridge proper is about half a mile, and there being no street crossings in that distance, the motormen let out a link or two, especially if they are behind time and it's their dinner trip. As before stated, the day was snowy, and of course the car was behind time. When the western approach to the bridge was reached the motorman, with a clear track ahead, threw the controller all the way around, and the car sailed along at a merry clip. Suddenly there dashed by, going in the same direction, a motor-carriage, in which was McDuffee. His companion was apparently holding on for dear life, and when Mac swung into Twenty-first Street to take advantage of the asphalt on Chestnut Street, the leeway on the vehicle reminded one of the actions of a hand-drawn sled when navigated around a slippery corner.

When interrogated later as to the cause of his hurry, Mac, with a surprised look, replied, "Why, I was afraid I'd be late for dinner.

Wants to Race Michael

"By the way, I wish you would say for me that I am willing to meet Jimmy Michael in a paced race at any distance up to thirty miles, and any other rider in the country, paced or unpaced, at the same distance."

From the which it may be inferred that Mac still hankers after track honors and their concomitant perquisites, scraping, pounding, grinding, roasting and boiling to death to the contrary notwithstanding.

The advertising of the automobile through the medium of the stage is by no means new, self-propelled vehicles of various makes having been introduced before the footlights time and again under various pretexts; but it is doubtful whether an enterprise of this character

ever attracted a tithe of the furore caused by the performance of the great conjuror Lafayette at the Grand Opera House last Thursday afternoon.

This modern Houdin has set himself the task of out-Ching-Ling-Foo-ing Ching-Ling-Foo, and it is the consensus of local opinion, at least, that the great Chinese magician is not in the running when it comes to a contest of legerdemain with his prototype Lafayette.

Lafayette's Automobile Trick

On the afternoon in question Lafayette, after successfully manufacturing—apparently out of nothing—his usual quota of ducks, chickens, pickaninnies, forty-gallon bowls full of water, etc., came out on the stage with a good-sized cloth in his hand. This he opened and shook in the usual manner to show the spectators that it was absolutely empty. Then, spreading it out on the floor, he began manipulating it after the usual manner of conjurors, and before long it became apparent that there was something under it.

Waiting a moment, as if to make sure that his work was properly performed, he whisked the cloth away, and, lo! and behold! there stood forth a brand-new shining automobile runabout.

Mystery Surrounds the Feat

How it got there nobody knows. It simply couldn't have come up through the floor, for the dropping of the trap to receive the vehicle would have resulted in a visible sag in the cloth—and the stage was as bright as day during the performance of the entire trick. The vehicle seemed to be produced from nowhere, and in the twinkling of an eye. It seemed almost beyond belief and the house shouted itself hoarse in recognition of the feat. It was the best thing of the kind in the advertising line ever seen here.

The magician promises to repeat the feat at an early day, when local newspaper men will receive an invitation to witness it.

GREAT TRANS-CONTINENTAL ROAD

PROJECT FOR SECURING A GREAT NATIONAL HIGHWAY BEING PUSHED WITH ENERGY BY
JOHN BRISBEN WALKER AND THE AUTOMOBILE CLUB OF AMERICA
—THE MOTOR-VEHICLE SHOW

New York, March 17.—A great trans-continental highway, long the dream of wheelmen, has now been taken up in earnest by the automobilists. It is well known that John Brisben Walker, editor of the *Cosmopolitan* and head of the Mobile Company of America, whose factory at Kingsland Point, near Tarrytown, N. Y., has just been completed, has been booming this great project for some time past in his magazine. At his suggestion Julian Hawthorne discussed the idea elaborately in a recent number.

More Than Words

Mr. Walker, however, did not stop at mere words and printer's ink, but finally, at his invitation, a distinguished committee, made up mainly of army men and West Point professors, consented to serve as a volunteer preliminary commission. This commission has at its head Gen. Nelson A. Miles, major general commanding the United States army, with Col. Richard L. Hoxie, corps of engineers United States army; Col. Peter Michie and Col. Samuel E. Tillman, professors at West Point, and Francis E. Stanley of Newton, Mass., as associates.

Character of Committee

"These gentlemen," says Mr. Walker, "combine among them not only much knowledge concerning road making, but wide information concerning the topography of the United States as well. Two of them have served for a number of years on the national surveys. All of them are men who will take up the consideration of this subject disinterestedly. It would probably be impossible to secure a more competent or more disinterested commission. They have agreed to give their services without compensation. When their report shall have been formulated the *Cosmopolitan Magazine* will take in hand the work of presenting it to the townships and villages along the route proposed.

"Undoubtedly the permanent advertising which each locality would secure because of the passage through its territory of such a roadway would be most valuable, to say nothing of the advantages to residents along a highway one hundred and twenty feet wide, constructed with reference to such swift motion as the automobiles of France have shown. In France records have already been made which almost equal those of the express trains, at a cost of one-sixth to one-quarter of the railway charges. It would be difficult to estimate too highly the importance of such a highroad, first as a local way and then as an object lesson to the people of other sections."

The First Meeting

The commission will have its first meeting at the rooms of the Automobile Club of America at the Waldorf-Astoria on April 2, and in the evening the club will tender a great banquet to Gen. Miles and his associates in the ball room, at which distinguished senators, representatives and experts will start the boom. The volunteer commission will present a report of their investigations to the government with recommendations favorable to the putting through of this great national highway for military, commercial and economic reasons.

It would seem that if it be proper and desirable to spend hundreds of millions of dollars upon the highways of external commerce in the form of harbor improvements, with much greater reason should millions be spent on the great highways of internal commerce of direct use and benefit to all.

Many Guests Expected

It is expected that fully 250 guests will sit down at the dinner, arrangements for which are in the hands of the following very competent committee: John Brisben Walker, chairman; A. C.

Bostwick, chairman runs committee; A. R. Shattuck, chairman good roads committee; Whitney Lyon, chairman house committee; E. A. Willard, Sir Thomas Lipton's American representative, and Juan M. Ceballos, the big steamship man.

Motor-Vehicle Show

The lease for the Madison Square Garden for the show to be promoted by the Automobile Club of America from November 3 to 10 has been signed. Correspondence will be opened at once with

the trade, though the matter of prizes and more particular details will not be taken up until the return of Albert C. Bostwick in July from Europe, where he will represent the club at the first international challenge race on June 14. Mr. Bostwick will sail on April 18, will compete in some of the smaller races abroad and may possibly take part in the automobile races in connection with the L. A. W. annual meet in Milwaukee, July 12-14.

A PROGRESSIVE BRITON

At a recent meeting of one of the English rural councils, a Mr. Bosville made the following effective and telling speech in opposition to a motion to limit the speed of automobiles in that particular locality:

"I should be very sorry to take up much of your time, but the subject is a very important one; and I have gone into it at some length in order to arrive at facts and figures, because I think a motion like this should not be passed without due consideration. The light locomotive is a new form of vehicle, and there will necessarily be a good deal of prejudice against it; but what I ask you to do is to treat this matter in a purely judicial manner, and to give the motor car the benefit of free play and a fair fight. By so doing I am simply asking that you shall exercise a little patience in regard to a new method of locomotion which is at present on trial in this country. Let me remind you of the struggle which the locomotive had to pass through from its cradle to youthful vigor. It may sound like mediaeval history but it is, as a matter of fact, only some seventy or eighty years ago since a fierce war was directed against railways. Our fathers and grandfathers were told, on the one hand, that a railway would ruin the country through which it passed, would poison the atmosphere, kill the inhabitants and destroy agriculture.

I will make no comment upon the false

nature of these prophecies, but pass on to the next scientific torture. In my own early days I can remember that the man on a bicycle was regarded as a noxious reptile to be shunned by all right-thinking people; horses stood upon their hind legs if they saw a bicycle, and their riders muttered curses in a convenient ditch. But the bicycle came to stay. The horse knew that it would be false political economy to sit up and beg each time it saw a bicycle, and the rider did not retire to the ditch. So much for the training of horses. Now the result of the railway and the bicycle has been a general reshuffling of the cards which are played in the game of life.

Our fathers were content to dwell in the place where Providence had placed them, and to buy and sell in a limited area. Science has since enlarged our horizon; we buy and sell in the best markets which we can reach, and we dwell for business purposes in the place which is best provided with means of cheap and rapid transit. The manufacturer lives near his coal and iron, or near the best market for his wares; it pays him to spend more on rent and taxes and to have only a very small bill for the transit of his goods. The agriculturist must, in the nature of things, dwell in the country away from the town, because he must have unoccupied land on which to grow his produce; but every farmer knows that the cheaper the means of transit from his

farm to the market the greater the value of the farm, which simply means that the farm which has the best facilities for removing goods is the most profitable farm, supposing, of course, that the quality of the land in each case is the same.

Now of late years we have heard a great deal about light railways. Though the main railways have formed a network of communication over the land, there are still many places which are seven or eight or even more miles distant from a railway station. We are told that light railways will help agriculture, and make many farms which can now only be worked with the greatest difficulty possibly paying investments both for landlord and tenant.

You know that in this district we have heard of several schemes for light railways, none of which up to date have come off. I am now going to venture into the dangerous region of prophecy and give you my own private opinion about light railways, which, of course, has no value except for any arguments which I can raise in support of it. Now, my opinion about light railways is this, that if they do not come within the next year or two, they will never come at all. The reason that I give for such a view is that the motor car will drive them out of the field altogether.

If you have ever studied the figures of a light railway scheme you will have noticed what an enormous portion of the cost is taken in providing for the track. I do not think I should be overstating the case if I said that seven-tenths of the cost of the scheme is sunk in the track and its maintenance. Now, suppose that a power locomotive of some sort can be obtained which will run on the highway for three-tenths of the cost of the light railway scheme—taking the capital at, say £10,000—we have in hand seven-tenths of the original estimate to spend in the extra bill for fuel on account of additional friction—the difference between rails and “macadam”—and also for the extra wear and tear of the highway. This is the problem which faces engineers at the present moment, and, as far as I can see, the motor car is bound in the long run to come out at the top.

But in the meantime, there are many ways in which this result may be put back for years and years. If you snub and bully the motor car at present it is quite possible that neither the light railway nor the motor car will come to the help of the country districts for many years. The light railway will feel unable to face the difficulty of the track, and the motor car will still be languishing in the workshop as an uncommercial toy. I have given you a few reasons for not treating the motor car as an enemy of the human race, and I will now come to particulars and fight this petition inch by inch.

As I daresay you know, some four years ago the Local Government Board made a set of by-laws which enabled the motor car, under certain restrictions, to have equal rights upon the highway with horse-drawn vehicles. As it is now proposed that the members of this council should do all in their power to alter these regulations, it would perhaps not be an impertinent question to ask how many members of this council have ever studied these regulations, and, if so, what practical experience of the working of these regulations they have had, both as drivers of horse-drawn vehicles and as drivers of motor cars. For it is surely an unheard of thing that they should sit in judgment on by-laws which they wish to repeal, if they have not carefully studied both sides of the question. Therefore I hope you will not consider it presumptuous on my part if I ask the clerk, should this petition be presented, to preface it with the number of motor cars owned in the district, the number of accidents caused by them, and the nature of these accidents; also the number of those gentlemen voting for this petition who have traveled fifty miles in a motor car.

Now there are two principal ways in which a motor car may cause an accident; first, by a collision on account of excessive speed; secondly, by alarming a restive horse. As to the question of speed, I think you will own that any speed becomes dangerous if the vehicle cannot be pulled up in a short space. A charging traction-engine at five miles an hour is just as dangerous as a motor car at twenty miles an hour, if the object be so

near it that it is unable to pull up in time. The question of speed really becomes a question of brakes.

Now, you may believe me or not, as you please, but it is a fact that a properly constructed motor car can pull up in a far shorter space than a horse-drawn vehicle. By law the motor car must be provided with two brakes; those two brakes can be used at the same time; as a matter of fact, the driver of a motor can have both brakes hard on in a much shorter time than the driver of a horse can apply the one brake, even if he has one, and transmit through the reins to the bit, to the mouth, to the brain, to the legs of the horse the notion of stopping. For this reason I maintain that a higher speed for motor cars can be safely allowed than is allowed for horses. As a matter of fact, I saw a table of the timing of one of the old coaches the other day, in which the speeds of certain distances worked out at something like sixteen miles an hour, so the legal speed of motor cars is nothing very wonderful after all.

Besides, the legal limit of twelve miles an hour is a very excellent one in this way—it means one mile every five minutes. You see, therefore, it is an easy one to time in round numbers. It is a speed that many bicyclists are accustomed to as a good touring speed. As most motor car men are also bicyclists, it is a speed that they know fairly well, and are able to a certain extent to judge. I maintain that, if you cut down the twelve-mile speed to ten miles, you do not in any way reduce the chance of accident (as I hope to explain later), and you give a sort of half and between speed, which drivers of motor cars cannot work so easily to as the twelve-mile limit, which is at least founded on round numbers. In the question of turning corners, I should like to ask the mover of the petition for a definition of a corner. I need not tell you, gentlemen, that some corners are easy corners and some very difficult ones. For instance, a right-angled corner with a high hedge or wall is a difficult corner; a branching road with a low hedge is an easy corner; yet the mover of the petition proposes to treat them all in the same fashion. For my own part I should be very sorry to take a motor car

round certain corners that I know of, at even six miles an hour; in other cases it would be as easy to turn them safely as to travel upon a straight road, for the road at the corner and round the corner would be visible. I must therefore beg of some alteration in the way of definition to this clause.

One thing I must say astonished me in this petition; it is that the mover should petition for something which is already in the act. The local Government board did not wait for the movement of this resolution to bell the cat. It was arranged that a "bell or other instrument shall give warning of the approach or position of the light locomotive." So perhaps that part of the petition might be dropped.

Now, gentlemen, suppose that this petition is presented, that the county council passes it, and that the local government sanctions it, let us consider its work in practice. We will suppose that it is thoroughly and rigorously enforced; we shall require at each turning or corner a policeman with a yard measure and a stop watch, and at intervals down the road sergeants and inspectors, all skillful mathematicians, with stop-watches, and distance stakes, watching the progress of, shall we say, half a motor car in ten hours. Is the game worth the candle?

The pleader who can only abuse his opponent has a very weak case; I therefore quickly leave criticism of the petitioner's scheme to tell you where I think the real danger and the real safety of the motor car comes in. In a word, the danger of the motor car is the scorcher. The scorcher, be he driver of a fast trotter, rider of a bicycle, or driver of a motor car, is a dangerous nuisance to the public, and should in all cases be sternly repressed. I am a member of the Automobile club of Great Britain, which is the representative club of users of motor cars in this land. Let me tell you that this club is doing all in its power to stop scorching, because it knows the danger and annoyance which this practice causes. Scorching is not so much actual speed on the road as a total disregard for traffic. If public opinion cannot stop scorching, then the law must step in. I venture to think that if the law steps in it will cause every motor car to carry an official num-

ber. If this is done, then the scorcher can be reported by any citizen. If you really want a safeguard against motor cars, why not petition for numbering? If you are consistent you will also number all horse-drawn vehicles, because they sometimes cause accidents.

Go a step further, and label all citizens. Think how useful it would be to be able to distinguish a burglar or a rate collector by his official number!

But, seriously, if you find in this district that the motor car is a nuisance, number it. You will do far more in this way to abate the nuisance than by cutting two miles an hour off its speed. I maintain that twelve miles an hour is a very reasonable speed; careful drivers would not attempt such a speed in thoroughfares where there is much traffic, or when passing a horse or carriage. On the other hand, in the open country motor car people are, I am glad to say, allowed to drive at a high rate of speed. I do not mean to say that the police sanction high rates of speed, but the precautions taken by the authorities to prevent a good spin on an open road are not yet sufficient to deter motor users from such indulgences if there is no traffic in sight and no cross road in the immediate vicinity, this being simply an intelligent interpretation of the spirit of the existing law. The owners of motor cars are at present a novelty on the roads. I think you will find that the better class use every effort to be courteous to the drivers of horses.

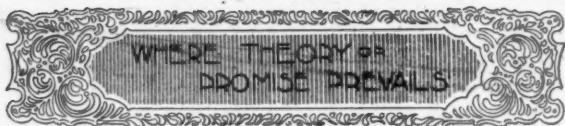
In my own experience, having for a year owned one of, perhaps, the noisiest and 'smelliest' little cars that you could imagine, I have done my best to give as little trouble as possible to drivers. I have passed them slowly; I have stopped; I have offered to lead horses; and, as a re-

sult, I have been most courteously treated by all drivers. I do not doubt that they have cursed me inwardly—just in the same way that I have cursed them at having to pull up—but on the surface we have both smiled at each other. Now, I have found that a horse very soon gets used to a motor car, even to mine. I do not doubt, therefore, that in a very short time horses will cease to give any trouble when passing motor cars.

Lastly, with regard to pace, twelve miles an hour is not an excessive pace on an open road; it is an excessive pace at which to pass a carriage. Passing a carriage depends entirely upon the carriage; if the horse is not known to the motor car driver he cannot be too courteous; if he knows the horse well, and has often passed it, then he can drive at a reasonable rate; but even ten miles an hour in a narrow road is not reasonable, though on a wide road it would be perfectly safe.

Let me beg of you not to hinder the great motor industry by means of vexatious flea-bites such as are proposed in this petition. The motor car, like the railway train and the bicycle, has come to stay. It has a legal status on the road; if it is not hindered it will soon be better made; it will be less noisy, and will smell less. It will in a shorter time be of more use to the community at large, for the small motor car is only the little brother of the big motor car, which I think will some day help the dweller in the country. Remember that the railway threatened to depopulate the country villages, and put the country roads out of use; the bicycle has begun to make us use our country roads again; the motor car will, I venture to say, in the future prove one of the best friends that country districts ever possessed."

The motion was not passed.



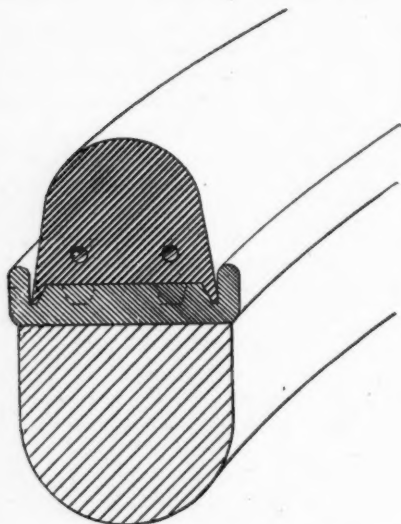
PROBLEMS WORKED OUT

THE WEEK'S PATENT OFFICE OFFERING—A NEW JERSEY MAN SECURES SLIGHT PROTECTION FOR A FRONT DRIVING CARRIAGE—TWO TIRE PATENTS

MILLER'S TIRE DEVICE

Letters Patent No. 645,481 to Stephen S. Miller, Akron, O.—In his specifications Mr. Miller premises as follows:

"As heretofore placed upon the market



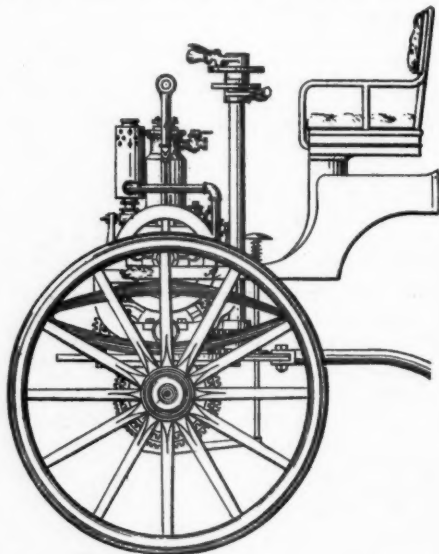
the metallic channel-rims for seating rubber tires have been made comparatively deep, with their peripheries lying in circles parallel to the most compressible portion of the rubber. Hence under the weight of the vehicle and its load the tire has bulged out over the flanges, cutting and damaging the tire badly. It has been proposed to do away altogether with flanges on the metallic rim; but this has been found objectionable, because it is impracticable to avoid two undesirable consequences—first, displacement of the tire upon severe side thrust, and, second, the lodgment of sand, gravel, water, and other destructive agents between the tire and rim. It is the purpose of my present invention to overcome these objections by providing an improved form in which the metallic rim has flanges, but of rela-

tively-small height, with wedge-shaped grooves at the inner side of their bases to receive lips or wings of a solid rubber tire of the form hereinafter particularly set forth and claimed."

The manner in which Mr. Miller constructs his tire is shown with sufficient clearness by the drawing. The grooves indicated in the felly under the retaining wires may or may not be used, as desired. If they are used the rubber tire is provided with corresponding projections to enter the grooves.

FRONT DRIVING VEHICLE

Letters Patent No. 645,497 to Hugo Stommel, of Plainfield, N. J., assignor to the United States Motor-Vehicle Co. of New Jersey.—Stommel's invention relates to the construction of a motor-vehicle in which the driving is accomplished by



means of the front wheels, and in which the entire motor and transmission mechanism is carried on the front axle.

The application was doubtless made with the idea of securing claims covering a device which would be readily attached to an ordinary vehicle in the manner of the "fore-carriage," an advantage which he sets forth in his specifications, but which is in no wise covered by any of the six claims which have been allowed by the patent office.

The claims which were allowed relate to the steering, differential gear and transmission. The front axle carries an upright engine and the transmission gear, while a fifth wheel carries the fore part of the vehicle body. The fifth wheel is provided on its interior with teeth which mesh with the teeth of a pinion on the lower end of a rod which terminates at its upper end in a steering lever, which, of course, turns the entire front axle. To allow for the differentiation of the wheels a compensating clutch is attached close to the hubs of each front wheel. This allows the wheel having the least motion to run free on its axle.

The power is imparted to a countershaft, which carries pinions of different sizes which mesh with other pinions on the front axle. The former pinions run free until bound, one at a time, to the countershaft by friction clutches which are actuated by means of projections on

a flat steel rod sliding in a groove in the countershaft. This steel rod is governed by a loose collar on the countershaft which is actuated by a ratchet and pinion connected, by means of a sleeve, to the steering lever but operating independent of it.

SHOWS POORLY ON PAPER

Letters Patent No. 645,310 to William Corliss, Providence, R. I.—This is a patent on a pneumatic tire which attempts to provide against puncture and various other supposed failings of the pneumatic. The outer tube of the double-tube tire is held on to a shallow steel rim by means of a "bolster" or retaining plate which extends around the inner periphery of the tire. Woven into the thread of the outer casing is a substantially flat steel band, with numerous slots at either end of make it flexible. The result of the insertion of this steel band and the "bolster" is to prevent the tire assuming a circular section and makes it present an approximately flat tread to the road, with a transverse section about twice as great as its radial section.

The tire does not look well on paper—for which reason no cuts are shown—and would doubtless look worse on the road.

A TRIP TO THE KLONDYKE

The Motor Age has already made mention of the two intrepid chauffeurs, MM. E. Janne de Lamare and Raphael Merville, who are going to make the attempt to reach Dawson City in motor-vehicles. Further details are taken from a late number of *Le Velo*, which comments in the following strain:

The two chauffeurs do not expect to traverse the 650 miles over the ice, in weather thirty or forty degrees below zero, in the same free and easy fashion that they would make a trip to Versailles. There are difficulties of which we can form no idea. The two drivers

are not imbued with any mistaken idea of enjoying the picturesque features of the trip. Nevertheless, they left Paris for Havre, where they embark this morning (March 3) full of confidence in their ability to make a success of the journey accompanied by M. Crom, who will make part of the trip with them.

There are appended some details of the proposed trip, which, if successful, will stand as monumental in the annals of automobilism—requiring the hardest of chauffeurs and being accomplished under supreme difficulties.

The vehicle which will be employed is

a Bollee voiturette which will draw behind it a sled. On the sled will be carried forty-five gallons of gasoline, as well as a gasoline tricycle of three horse-power—three horse-power of auxiliary force for difficult spots.

Moreover, the voiturette will be especially equipped, the forward wheels being replaced by runners, and the pneumatic tires of the rear wheels being replaced by a rim provided with spikes to take hold of the ice. Motor-vehicles similarly equipped have been used in Canada and have been used with success.

On the sled a tent and tools will be carried.

And victuals? No.

This is one of the original features of this expedition. The food for the chauffeurs will be furnished by friendly Indians along the route, as will be arranged by M. Lamare, who is well acquainted in the region, and by the mounted police who are found at intervals along the road—or the frozen river and lakes, for there are no roads worthy the name.

Winchester rifles, together with revolvers, will form a part of the equipment, as well as pepper and salt with which to season the venison that it is expected will be gotten by aid of the firearms.

The itinerary of the journey is as follows:

Havre to New York by steamer; then to Montreal and Vancouver by rail; from Vancouver to Skagway by boat and from Skagway to Lake Bennett by the new Yukon & White Pass railroad. From the last named point the real automobile trip will begin, going northeast to Atlin City, the new gold center, which, with Dawson City, is becoming one of the big mining centers.

There M. Crom leaves the expedition and will engage in the installation of water works. Perhaps the expedition will furnish him with some ideas of the values of gasoline motors in the gold country.

At this point a new supply of oil will be laid in. As the two remaining chauffeurs continue they will traverse Lake Tagu Arm, Lake Tagish, Miles Canon, and the White Horse Rapids—which never freeze, even when the thermometer registers seventy degrees below zero. They will have to go by boat a distance of six or seven miles and then follow the Fifty Mile River the distance its name suggests, Lake Labarge, and Lewis River, which brings them to Fort Selkirk, the future official capital of the Yukon territory. It then remains to follow down the Yukon River, often two miles wide, to Dawson City. The entire journey is about 650 miles.

If the two intrepid chauffeurs reach Dawson City they are bound to become the subjects of admiring curiosity and the Americans, slow to institute new ventures, will have to admit themselves outdone in enterprise.

It will hardly be a common sight to see a motor-vehicle traversing the streets of Dawson City, in the neighborhood of the Arctic Circle.

In the summer time M. Lamare intends to mount the motor of his tricycle in a boat and penetrate to Cape Nome and the Behring Sea—or as far as he can go.

This adventuresome trip into the frozen regions of the north is not without its terrors, being to automobilism what Andree's trip was to aerial navigation. But the auto of to-day lacks the imperfections of the best air-ship. In it, at least, the chauffeur knows where he is.

And despite all the difficulties of the trip, we have sufficient confidence in the enterprising chauffeurs and in the automobile to believe that it will be successfully completed.

We can truthfully say that to-day the word impossible is not a French word.

It may be added that M. Lamare, who is aware that his route is paralleled by the telegraph wires, has promised to keep his friends advised of the progress of the expedition.

MOTOR-VEHICLE RIGHTS ON HIGHWAYS

A ST. LOUIS MAN INDICTED FOR FELONIOUS ASSAULT AS THE RESULT OF FRIGHTENING A HORSE—LEGAL STATUS OF THE CASE

The finding of an indictment for felonious wounding by the grand jury of St. Louis county against John C. Higdon, a lawyer residing in St. Louis, for injuries alleged to have resulted from the use of a public highway with an automobile, has created considerable excitement among the owners of that class of vehicle in Louis. They are anxiously inquiring to discover whether the law discriminates against them, says a St. Louis exchange.

The Accident

The indictment grew out of an accident which occurred September 21, 1899, on the Olive Street rock road. Higdon, with two of his children, was riding in an automobile on the road. They saw approaching a horse and buggy which was in charge of Mrs. Katherine Pauli and her mother, Mrs. Katherine Anselm. According to Mr. Higdon, he noticed that the horse pricked up its ears when about 125 yards away. The ladies continued to drive on, and when the two vehicles were about 100 feet apart the horses became fractious. Mr. Higdon then stopped his vehicle and rushed to the assistance of the ladies. They in the meantime had tried to turn around and go back in the same direction from whence they came. The turn was too short and the buggy upset, throwing the ladies out. This incident added to the excited condition of the horse and he broke from the buggy and ran to a field near by. Ten days later Mrs. Anselm died. The night of the accident she had a hemorrhage of the lungs, supposed to have been superinduced by the accident.

Ground for Indictment

Civil suits for damages were filed against Higdon by the personal representatives of Mrs. Anselm and the matter was subsequently brought to the attention of the grand jury and a "bill" for felonious assault returned.

The indictment does not aver that there was any actual collision between

the buggy and the automobile, and hence no actual assault made by Mr. Higdon. It avers that the automobile was propelled by steam and while passing over the public highway emitted a quantity of steam and smoke and made great noises, thus frightening man and beast.

The petition is drawn on the theory that an automobile is not such a vehicle as can be safely permitted on the public highways, and all automobile owners are equally liable to prosecution if any accident results from their use of the public streets or roads.

Autos in St. Louis

There are at the present time about fifty automobiles in St. Louis. Of this number a few, perhaps a half dozen, are used for business purposes, such as delivery wagons. All the others are intended purely for the pleasure they can afford. In addition there are several hundred prospective owners, all of whom contemplated the use of their machines for drives during the spring, summer and autumn. The prosecution of Mr. Higdon has put them in a quandary and now they don't know whether they can use the highways without incurring severe legal penalties or not.

Favorite Drives

The drives in Forest Park and along the boulevards of the western section of the city have long been one of the chief sources of recreation and pleasure to the citizen. Favored by most drivers because of the bodily comfort the condition of the roadbed affords, as well as the pleasing prospect that the palatial residences along the boulevards present, there can be no doubt that all kinds of vehicle, from the plain buggy to the automobile, will be found on these highways passing and repassing.

If, however, the automobile owner is to be civilly and criminally liable for every fractious horse that may be frightened

by an automobile the risk to owners would be so great that no prudent man would assume it.

Legal Status of the Case

Concerning the legal status of the automobile on the public roads and streets, City Counselor Schnurmacher said:

"The same rules govern the automobile as any other vehicle on the public highway, and the fact that they were propelled by steam, or gas, or electricity, or what not, has no more effect upon their legal status than the fact that one vehicle was drawn by horses and another by mules. The driver of an auto goes on the street or other public highway with exactly the same rights that a driver of any other vehicle does, and he is required to observe the same laws and regulations, and failing to do so he becomes amenable to the law and may be civilly or criminally liable according to the nature of his disregard of law."

Court Decisions

The supreme court of Maine recently decided:

"A street is in law a public highway, and as such belongs to the public, and all citizens thereof, and all have the right to travel thereon by their own selected modes of conveyance, whether it be as a foot passenger, bicycle, ox team, a four-in-hand or an automobile."

In a Michigan case the supreme court of that state decided: "The drivers of horses have no more rights in streets or carriage

ways than those using other common modes of conveyance, and the mere frightening of horses is neither actionable as a tort nor complainable as a nuisance."

A Chicago Case

Judge Gibbon of Chicago, passing upon a regulation adopted by the board of park commissioners of the city, said: "The board has no right to prohibit any vehicle using the boulevards, so long as it does not endanger the safety of others. The order in question is void, because it singles out automobiles by name and places them under outlawry, when, as a matter of common observation and scientific knowledge, there is less danger in propelling an automobile than there is in driving a horse and buggy."

Missouri Decision

In Missouri several decisions of the supreme court follow the trend of the cases already cited, but no specific automobile case has been passed upon.

A case in point: The owner of an elephant took him on the public highway and thus moved him from place to place. The animal frightened a number of horses and considerable damage was caused thereby. Suits to recover failed because the court held the mere presence of the elephant on the highway was not actionable, as an elephant's owner had the right to use the roads to move his property from place to place, and, when horses or other teams were frightened thereby, it was team-owners' misfortune in having timid teams.

LOCOMOTION OF THE FUTURE

*Jingle bells, jingle bells, jingle all the way;
O, what fun it is to ride in an Automo-coupe!*

What are one's sensations while he is being whisked along at the rate of from ten to twenty miles an hour, on velvety wheels, and with "no pushee, no pullee" visible? asks John F. Cowan, in the *New Voice*. Well, the first thing the rider misses is the familiar sight of the horse. The horselessness of his novel equipage

gives it a "sawed-off-in-front" effect. And as he seems to remain stationary and watches the long stretch of road swiftly approaching him, the absence of the usual buffer of horse flesh makes it appear as though there were nothing to prevent the road from piling over the top of the dash-board, or that a head-end collision with something or other was inevitable. Then, the man who is

accustomed to feeling his arms tingle with the electric pull of a mettlesome steed at the bit, finds little compensation for that exquisite sensation in shoving cold mechanical levers backward or forward, up or down.

But the sensation which quickly takes the place of these temporary disappointments is one of keen exhilaration at the swiftness and smoothness of the motion. "The Glide," which some one has proposed, as a substitute name for "automobile," describes the movement exactly. It is the roller-coaster, shooting the shutes, skating, the limited express, all in one; it is riding, with the clatter and jar refined out of it. * * *

As to the newspaper jokes about the "automobile face," put these three things together: A sense of timidity because there is no horse between one and a possible smash-up; a tendency to squint the eyes to screen out dirt, and the contraction of the muscles of the face, natural in a strong rush of wind, and—well, yes, mildly, I think there is such a thing as the "automobile face."

But as crazy as the self-propelled vehicle looks spinning along the street, and say what you please about the awkward shapes that have resulted from following too slavishly the line of the horse vehicle, and the elephantine clumsiness, which the bulky storage batteries and wide pneumatic tires give the automobile, never does an electric cab, auto-cab, auto-car, locomotive, electromobile, motor carriage, horseless carriage—call it by any mouthful of Latin compounds you choose—go whizzing past, without some interested observer putting on his thinking-cap and mentally resolving: "Just as soon as those things get cheap enough I'm going to have one." * * *

How much of the world has the automobile conquered? He needs to be an up-to-date geographer who attempts to map it. Five years ago there were not thirty practical horseless carriages in the world. One year ago there were not thirty in America. Yet last season Newport had an automobile parade in which

nineteen carriages were in line, and there would have been fifty could the manufacturers have supplied the orders. One reason for the scarcity of carriages is that America is shipping five times as many abroad as we are using.

America leads, as might be expected, in the manufacture of the electric motor. That it would be no flight of fancy to call this the "automobile year" will appear from the fact that one American concern recently gave an order for 4,200 vehicles. One's brain almost becomes intoxicated if he allows himself to speculate for a moment on the revolutionary possibilities—no, certainties, of the automobile's future. Just a snapshot at the twentieth century: In addition to the automobile pleasure-carriage, cab, delivery wagon, truck, mail-wagon, 'bus, ambulance, fire-engine, etc, there are soon to come the automobile gun-carriages, armored wagon, cavalry tricycle, plows, harvesters and last, but not least, the mechanical horse, already in existence in France, a tricycle motor that can be attached to any existing vehicle. And before you could complete such a list some new invention is sure to be added.

A revolution is going on in which our faithful friend, the horse, is more deeply concerned than he was in that from the stage coach to the trans-continental Pullman train, and from the street car mule to the continuous trolley line such as now connects New York and Boston, and will soon gridiron the continent. Art will unite with mechanics in designing shapes for the automobile for the future that will make it as unique and beautiful as it will be cheap and swift.

The twentieth century will roll in on auto-trucks. With a great trans-continental boulevard, and feeders running in all directions, with cobblestones and dirt replaced by asphaltum and macadam, with the clatter of iron hoofs, the rumble of steel tires and the dirt with which the beast of burden now litters the highway gone, we shall live in a quiet, nerve-saving, independent, corporation-free, grimeless, grindles sage of ubiquitous automobiles.

GENERAL NEWS AND COMMENT

AN AUTOMOBILE THIEF CATCHER

Chicago policemen are beginning to taste the virtues of automobile patrol wagons, although the city boasts the ownership of no self driven wagon. Captain Lavin of the Stockyards was notified by telephone the other day that policemen were breaking into a house on Rockwell Street, but the patrol wagon at his station was already out on a call, and, on his telephoning to the nearest station it was found that the same was the case there. The house was considerable distance away and the Captain was about to send officers on the street cars as a last but unsatisfactory resort, when he spied an electric cab passing the station.

He hurried out and stopped the cab, ordered the driver to place himself at the service of the police, and then, with two officers, jumped into the cab. The party was soon in the neighborhood of the robbery and sighted the two thieves making their departure. When the thieves saw the police they started to run, but the cab was rapidly overhauling them when the fugitives pulled revolvers and began to shoot at the driver and passengers of the cab.

This was something on which the driver had not counted and he declined to make himself a target, stopped the cab short and jumped down behind it, where he would be out of range. The officers had no time to argue the question of the propriety of his action, but alighted and gave pursuit to the thieves on foot, returning their fire in such convincing style that the house breakers surrendered. They were placed in the cab and taken back to the station, muttering imprecations on automobilism in general and electric cabs in particular.

Captain Lavin was jubilant over the success of the innovation. He said:

"These autocabs are all they are cracked up to be, and more, too. It would be a great thing to have electric patrol wagons, and I guarantee that if the police department was supplied with them crime

would decrease fifty percent. We had a great ride, and, despite the fact that there was too much lead in the atmosphere, I enjoyed the sensation, besides catching two bad men."

CROSSING THE SOUDAN IN AUTOS

Some will doubtless recall the automobile trucks which for two years have figured in the annual "concours" of heavy-weights at Paris, says De Velo. They were baptized the "Soudanais" and were destined for the banks of the Senegal by Felix Dubois.

They went away and their debut was attended with many mishaps. The innovators, however, did not lose heart and success finally crowned their efforts. Today the automobile is installed in the Soudan and a freight and passenger service has been inaugurated between Bammako (on the river Niger) and Kayes, which is the end of navigation for boats leaving Saint Louis, on the Senegal. Here is a notice from the Havas Agency.

A dispatch from Kayes, dated February third, announces that the governor of eastern Africa, M. Chandie, is returning from a journey which had for its object the organization of new civil and military territory and in the course of which he introduced a new and important freight and transport service by means of automobile carriages and trucks.

Leaving Kayes, Bammako, January 22 the governor and his suite arrived at Kita in two days; the average speed being about sixty miles for a daily run of six hours.

M. Chandie continued in the same manner from Kita to Toukouto, which is the terminus of the automobile railway. He returned to Kayes in the same vehicle, arriving there January 27.

On reaching Kayes, the governor of eastern Africa expressed his complete satisfaction with the rapidity and facility of the new mode of transportation. He recalled a previous journey to the Niger in which he spent fifteen days on the road,

The river Senegal is now connected with the Niger. It is a highway over which passed first the army and lastly French commerce to connect Saint Louis with that mysterious Niger, and with Bam-mako, from which they descend today in steam sloops as far as Segon and Kabara, the port of Timbuctoo.

The only check to navigation and the railroad was the upper Senegal, cut with rapids, and the mountainous region called Fouta-Rjabon, which separates the Senegal from the Niger.

Thanks to the automobile, a long, economical cross-line has been definitely established between Saint Louis and the mouth of the Niger, which holds the same relation to eastern Africa that the famous Cairo-Cape line does to English Africa.

NAPLES CAB DRIVERS' STRIKE

The strike of the Naples cab drivers is over. It was all brought about in this wise:

Application had been made to the city council for concessions for an automobile cab company. As soon as the cab drivers heard of it they decided that it was an attempt to take the bread and butter from the mouths of their families, called a meeting and appointed a committee of four to wait upon the mayor. This committee presented a petition to the effect that no concession be granted for at least three years, during which time the cab drivers would be able to provide themselves with motor-cabs and thus afford an automobile service.

The mayor answered that the application for the franchise had not been examined, and—as any politician would have done—assured the committee that the interests of the cab drivers would be heeded as if they were his own.

This assurance did not satisfy the cabmen and at another meeting they resolved that the mayor must give them an assurance "on official stamped paper" or "proclaim in a loud voice from the balcony of the city hall" that no franchise for automobile service would be given within the next three years. No answer being received to the copy of the resolutions which were sent to the mayor, the cab

drivers struck the next morning—4,000 of them.

One lone cabman started out with his vehicle, but was soon sighted by the strikers and he was hauled off his cab, badly battered himself and his cab was literally torn to pieces. In Portici, a suburb of Naples, the strikers assaulted a cabman carrying two foreigners from Pompeii. The cab was smashed to bits and the driver forced to fly, as were his passengers.

The next day the mayor gave the official assurance that no franchise would be granted for two years to come, the strikers were satisfied, and immediately resumed their seats on their cabs.

A MAMMOTH MOTOR-VEHICLE

A wealthy Australian owns what is said to be the heaviest motor-vehicle in the world, says the Philadelphia Call. It weighs fourteen tons and is run by a gasoline motor of seventy-five-horse power. This enormous vehicle, which is capable of a speed, when needed, of eight miles an hour, is employed to carry freight to and from a gold mine situated 372 miles in the interior of the country.

A RUN IN A BLIZZARD

New York, March 17.—Blizzards have no terrors for the king-pin enthusiast of the Automobile Club of America. Today, in his capacity as chairman of the runs committee, Captain Bostwick was on hand with his vehicle at the rendezvous in Astor court, set for the first club run of the season, with the Ardsley Club, twenty-three miles away, as the destination. Quite a sizable blizzard the day before had left even the city streets in a condition that defied the sweeping bureau, while, of course, the country roads were deep with snow. Several members had dropped around to learn the postponed date. But one other came motor mounted. He is A. E. Szwarkopf.

"I've ordered my luncheon at Ardsley and I am going up to eat it. There will be no postponement. This run goes," was the intrepid captain's startling ultimatum.

"You'll share it with me, won't you?"

promptly queried the other invincible with the blizzard land cognomen.

"Why, certainly. Come on!" and away went the pair of Arctic explorers, leaving their awe-stricken fellow club members rooted to the spot for several minutes before they recovered sufficient composure to go into the Waldorf hard by and thaw out by hot Scotch radiators. The cold had not frozen the sporting blood of the chauffeurs and they made a race of it. Bostwick made the run in less than two hours, beating out his rival by forty minutes. After luncheon they made a leisurely return, men and machines none the worse for wear. Of such stuff are the pioneers of automobilism made.

An omnibus service will be established by Captain W. T. Fritts between Chattanooga and Walden's Ridge, a suburb, over a road having particularly stiff grades and none too good a surface. The captain is reported to have purchased in St. Louis a 'bus having accommodations for sixteen persons and fitted with a sixty horsepower motor.

Lockjaw, typhoid fever, influenza, choleric diseases and blood poisoning from wounds, are some of the ills to which man is heir, according to a medical authority,

which will be very materially reduced were horses, with their unsanitary accompaniment, banished from cities.

S. D. Rogers has been elected temporary chairman of the recently organized San Francisco Automobile Club and B. L. Ryder temporary secretary. Nineteen names have been registered on the list of charter members.

Liveried Menial—Me lud, the carriage waits without.

Lord Fitz Josher—Without what?

Without horses, me lud! 'Tis an automobile.—Chicago Record.

The German Automobile Club has 232 members, of whom seven are ladies. The club has recently completed a racing code, which will hereafter govern all races in Germany.

The total number of licenses that have been issued to operators and owners of motor-vehicles in Chicago now amounts to sixty, including one to a young lady.

Minneapolis is forming an automobile club. Many of the prominent citizens have already ordered vehicles and more of them are making investigations.

NEWS OF THE MOTOR INDUSTRY

DETROIT FACTORIES BUSY

Detroit, Mich., March 18.—Both the Detroit Automobile Co. and the Olds Motor Works are hard at work on their motor vehicles, hoping to be able to have them on the market in the spring. At the Olds works over 100 men are kept busy, and the vehicles are in all stages of construction. By and by, when the assembling begins, it will be an easy matter to put a goodly number on the market each week.

Thirty men are now employed by the

Detroit Automobile Co., and as fast as the special machinery ordered arrives more men are to be put to work. It is the intention of the company to manufacture both the body and the motive power, so adapting one to the other that nothing in the way of strength, safety and availability will be lacking.

"We have already set one or two dates for the appearance of our motor vehicles in quantities," said one of the officers, "and now we have concluded to stop that nonsense. We are making a machine that

is easily controlled, solidly and perfectly constructed, and generating the greatest power with the least expense. To accomplish this we are subjecting it to all kinds of severe tests. When the snow was two or three feet high on the streets Superintendent Ford had our motor vehicle out. He had no difficulty at all in getting along. Indeed, he could go through drifts impossible for a horse. Water may be thrown upon the gear without danger, as the mechanical parts are water and dust-proof."

VETO FOR AUTO FRANCHISE

Mayor Fox of Urbana, Ill., has vetoed the ordinance giving a franchise to an automobile 'bus company to run between Urbana and Champaign. He gave his reason for the veto as follows:

"That in his opinion this system may be a benefit, and that further he believes the said company may operate such a system without a franchise. He believes the only reason the franchise is asked for is that the company may not be interfered with by competition or otherwise for 20 years. 'This,' says the mayor, 'is a new enterprise, of which we know but little, and that by now granting this franchise the city takes all the risk, and in my opinion the city would be liable for all damages in case of accident or injury. Our streets are narrow, and on busy days are crowded with traffic, leaving perhaps an insufficient amount of room for their carriages, the dimensions of which are not specified, and of the appearance of which we know nothing, but which I imagine would likely scare horses. I believe it better to leave this matter where we can control it.'"

A WARNING TO MAKERS

The following clipping from the New York Sun, concerning a doctor, one of the first in America to adopt the horseless vehicle for service in his business, contains a lesson for motor-vehicle builders in that it shows the severe strains to which the self-propelled carriages are subjected. The clipping reads as follows:

"Dr. John Zabriski of Flatbush is becoming a frequent patron of a bicycle re-

pair man because of using a light gasoline automobile. Not long ago one of the doctor's tires was punctured, and it cost \$13 to vulcanize the hole. The other day while running through a muddy stretch of road and attempting to turn, the tire stripped off the wheel. The tire weighs twenty-eight pounds. The bicycle dealer to whom it was taken showed it to a reporter of the Sun as one of the most remarkable accidents he had seen in the course of twenty years' experience. The iron bolts by which the tire was fastened to the steel rim had been all 'sheared off' on the inside almost as close and as clean as if done by a cutting machine. The repair man said: 'That is the most impressive demonstration ever have seen of how tremendous is the side strain and twist on a wheel in turning. This tire was cut from the rear wheel on the side of the direction in which the doctor tried to turn. Now, just imagine what kind of a strain the rear wheel of a bicycle that has all the weight and all the twist to stand is put to when a rider is switching through sand and mud.' A photograph of these iron bolts, a quarter of an inch in diameter, cut off this way, should be shown to every rider of country roads. Then they would not complain of wheels going wrong, but would wonder that they lasted so well."

CHICAGO MOTOR-CAB COMPANY

The Chicago Rapid Transportation Co. of Chicago, of which the Hub Motor Co. is the parent company, is planning to establish an omnibus service in place of the "carette" service which utilizes the remnants of horseflesh for which no other use can be found, on certain of the north side streets where franchises for laying car tracks cannot be obtained. Corporation Counsel Walker is authority for the statement that no special ordinance would be required for the operation of the vehicles, which are designed to carry twenty-five passengers.

ELECTRIC IGNITER FOR STEAM VEHICLE

One of the great drawbacks to the use of the steam vehicle has been the re-ignition of the gasoline burner, after intentional extinguishing of the fire, or its

accidental blowing out by sudden gusts of wind while the carriage is in motion. The latter entails the annoyance of stopping the vehicle, and, further, in both instances, the scratching of one or more matches, as a disagreeable detail, especially in a gale.

The A. L. Bogart Co. of 123 Liberty street, New York, have just designed an ingenious electrical device to overcome this disadvantage, through which, by the simple pressure of a push button, the burner may be electrically ignited at any time, as long as the boiler remains heated, whether the vehicle is still or in motion. This device permits the extinguishing of the fire during all stops, resulting in considerable economy in fuel, and obviates all necessity of stopping the carriage in case of fire becoming blown out when under way.

NEW YORK AUTOMOBILE CO.

Syracuse, N. Y., March 17. The New York Automobile Co. of this city has recently been incorporated with a capital of \$350,000. Its principal owners are the well known and wealthy White family of Syracuse. A factory will shortly be put into operation and A. R. Peck, formerly of the Barnes Cycle Co., has been urged to accept the position of manager. The gasoline motor to be used in the vehicles stores compressed air by a series of auxiliary cylinders, which in turn is used to start the engine in place of levers or cranks. The motor is the invention of John Wilkinson. A vehicle has been completed and another is in process of construction. A number of new workmen have been engaged and are at work on the C. A. Lipe factory on South Geddes Street.

ST. LOUIS GASOLINE MOTOR

The St. Louis Gasoline Motor Co. is having a great demand for its motors, transmission devices and running gear which it is supplying to a great number of builders. The motors of two-horse power are single cylinder engines and those of greater horse power are built with two cylinders. They are of the horizontal type, four cycle and water jack-

eted. The two-horse power motor is but sixteen inches long with flywheel seventeen inches in diameter, and the cylinder, including the water jacket, is only five inches through. The quality of the explosive mixture is maintained at a constant point, the amount admitted to the cylinder being governed according to the demands upon the motor. The ignition is electric and entirely automatic. Crank shafts are made of forged steel and every part is constructed with the utmost care.

For use in boats, or vehicles when so desired, upright motors may be obtained.

The transmission and equalizing gear is very compact and convenient.

TRIAL OF MUNSON VEHICLE

The Munson Co. of Laporte, Ind., have forwarded a report of a recent trial of one of their vehicles made under particularly trying conditions of roads and weather, the former being covered with snow drifts, ice and slush, all of which were conquered by the vehicle.

The trial was made in a vehicle, according to the report, which weighs 4,470 pounds, and is designed to carry eleven passengers. It is equipped with a gasoline engine for ordinary conditions of road, but also carries a storage battery and electric motor to give additional power in case of unusually severe conditions. The motor can also be used as a dynamo to replenish the supply of electromotive force in the battery, being actuated by the gasoline engine.

A HUGE MOTOR CONCERN

Mr. C. C. Carlin of Alexandria, general counsel for the Virginia Automobile Co., said, according to the Washington Post, that the company just chartered by the legislature was backed by a company already doing business in other cities and controlling \$20,000,000 in its enterprises. The manufacture of automobiles will begin at once in Alexandria, and it is not unlikely that a branch factory will be established in Richmond.

"We shall put in about thirty to forty automobiles in Richmond very soon," said Mr. Carlin, "and will select our routes

and possibly open up some new streets leading to the parks and suburban resorts, as our charter permits us to do."

It is also designed, he said, to build highways between many of the cities and towns and make a special business of carrying the products of the farms to the markets.

The company will also make arrangements to serve the large dry goods and grocery stores in carrying both the customers and their packages directly from the stores to their residences. The delivery of packages will be made an important feature of the business here, and the greatest speed and lowest rates will be obtained through the agency.

"We are coming, and that very soon," said Mr. Carlin, "and we will give Richmond a service she may be proud to have."

BALDWIN PATENTS SOLD

The Slaymaker-Barry Co., of Connellsville, Pa., have purchased all the patents of the Baldwin Automobile Co. of Providence, together with their patterns and other requisites for the manufacture of motor-vehicles. The new owners of the patents write that they expect to establish a large motor-vehicle department in connection with their already extensive business in locks, builders' hardware and bells, and expect to be making deliveries of runabouts and delivery wagons within a month or six weeks at the longest.

FRIEDMAN AUTOMOBILE CO.

The Friedman Automobile Co., of Chicago, has been granted charter to incorporate for \$100,000. The factory at 236-240 Carroll avenue, formerly occupied by the Sterling Cycle Works, will be occupied. Oscar J. Friedman and Walter W. Robinson have been conducting experiments at that location for some months past. Mr. Friedman was one of the incorporators of the Woods company. Gasoline motors will be used in the vehicles.

In an item concerning the opening of a shop for the repair of tires in New York, in last week's issue of the Motor Age, the name of the Akron company was inad-

vertently given as the Goodrich Tire & Rubber Co. instead of the Goodyear Tire & Rubber Co., and the Goodyear company naturally desire it understood that they have no connection with the B. F. Goodrich Co.

F. M. Conley, of the Winslow Automobile Co. has about completed the purchase of the factories of the Doylestown Agricultural and Lenape Bicycle Works of Doylestown, Pa., on behalf of his company. It is said that the works will be enlarged.

L. D. Munger is busily at work at the factory of the Hartford Rubber Works in Hartford, completing his tire, which is expected to revolutionize the auto tire industry. Munger expects the molds at an early date. F. S. Dickinson, of New York, will aid him at the factory.

The Sandusky (O.) Automobile & Gas Engine Co.'s business is divided into two departments, that of building gas engines and that of building motor-carriages. One of the features of their carriage will be a new gear, for which patents are now pending.

The Union Automobile Co., of Baltimore, has been incorporated with a capital of \$50,000 with power to increase it to \$500,000. Arthur P. Gorman, Jr., is interested in the company.

The Hill, Whitney & Wood Co., of Waltham, Mass., are making aluminum castings, aluminum mudguards and spun work of all descriptions, adapted to motor-vehicles.

A higher duty is being frantically demanded by German motor-vehicle builders to keep out American carriages. The newspapers are sounding the alarm.

Hiram T. Bradley of Oakland, Cal., is forming a company for the manufacture of motor-carriages of his design.

The Victorian (Australia) customs department has decided that motor-vehicles imported into that colony come under the definition of "vehicles not otherwise

enumerated" and are thus subject to an ad valorem duty of twenty-five per cent.

The Maryland Automobile & Mfg. Co. of Baltimore has been incorporated with a capital of \$5,000.

The Locomobile Co. of America state that they will have two handsome exhibits at the Paris exposition, one in the

Champ de Mars and the other in the automobile building in Vincennes Park.

It is probable that the New York Automobile Mfg. Co. will establish a factory at Paterson, N. J.

T. L. Register of Rock Island has completed a gasoline motor-carriage, for which he claims great things.

MOTOCYCLE AND MOTOR PACED RACING

Charles W. Miller has imported a new motor from France and believes that it will now travel forty-eight miles an hour. Miller intends to train himself and his pacing team, Stone and Judge, for an attack at the hour record.

The professional chauffeurs of this country would like to have a straightaway race put on for them at Milwaukee during the National meet of the L. A. W. and N. C. A. in July. There is a race of this character scheduled, but it is for amateurs.

On the little eight lap saucer track at Los Angeles Iver Lawson followed a motorcycle a mile in 1:34.1-5. That is record for the motorcycle as well as the cycle rider for a track so small. Each of the eight laps was negotiated at an average of about 11¾ seconds.

It is estimated that with the new pacing artillery of the present season the Americans will be able to bring the one-hour motorcycle record to forty-five miles, the individual motor paced, bicycle record to forty miles, or an average 1:30 gait, and the one-mile record to 1:10.

Nagel and Judge, the Harlemites of New York, formerly a crack tandem team, plan to establish a record at an early date from New York to Philadelphia. They will use the quadricycle of Nagel's which he so altered as to increase from a twenty mile an hour gait to thirty and even more.

Providing tricycles in sufficient number are in use race promoters will change their programs occasionally this season and give a tricycle contest such as is now seen in France. The riders of that country rush around the track at a frightful gait. One who has seen them says: "They ride so

close together that their wheels seem locked as they take the high bank. You look for a grand smash-up, but they escape. The race is very exciting."

Motocycle racing will be made a leading feature of the three day grand circuit meet to be held at Montreal in August, when \$3,700 in prize money will be given. Montreal fell flat last season as far as motorcycles were concerned, there being but one present. This one machine made the 100-kilometer champion races of the amateur and professional classes farcical in the extreme.

Henshaw and Hedstrom are busily employed at a factory in Middletown, Conn., completing their two motor cycles. Hedstrom has embodied some rather bold ideas in the construction of these machines, designed by himself. The motors will be 2¼ horsepower, but the machines will go 1:10, according to the builder, six seconds under the time estimated by other riders for 2¼ horsepower machines.

In the paced races this season the old days of the many manned multicycle machines will be recalled, although the pacing artillery of a contest will not include as many men. Each competitor will be provided with two pacing machines and as rarely less than six competitors will be seen in one of these races there will be twelve of the puffing billies on the track at once. The increased fields are expected to heighten the interest.

It is going to be the motor pacing this season as much as ever which will count in middle-distance cycle racing, but at the same time the motor cycles will be limited in speed by the limits of the tracks and not of their motors, and the riders will have more trouble than before in keeping up to their pacing machines. Last season few of

the motors traveled faster than many an expert could follow. The pace followers and their motorcycles are more evenly matched this season and some very pretty contests should be the result.

E. A. McDuffee has asked C. W. Miller for a match race at New Bedford, Mass., late in May. McDuffee wants to pit his steam machine against Miller's gasoline "go-devil," and Miller is willing, as he believes it possible to defeat McDuffee, although the Bostonian expresses no doubt of the result.

Motors allow of endless experimenting and every little machine shop is now engaged in working out experiments for wealthy but unmechanical, would-be inventors, who are anxious to astound the world. The season will see autos without number of home manufacture and of many novel features both in the motor and the style of gear.

The Waltham Mfg. Co. is changing the motor cycle tandems of last season from $1\frac{3}{4}$ horsepower to $2\frac{1}{4}$ horsepower at a comparatively small expense, and the old machines are not on the market as had been reported. Manager Gash of the Waltham Co. says that racing men have money, for they are paying cash for numerous motor cycles of the latest pattern and for changing the old ones in some particulars including the motor.

The motor cycle teams of the season are contracting with the pace followers for pacing throughout the year at a stated sum per race or a percentage of their winnings. Some of the pace followers refuse to make such a contract, believing it better to wait until the

season opens and until the machines have received their trying out spins, as some may be considerably faster and easier to follow than others.

Throughout the country there are being constructed many novel motor bicycles and races for singles may be a possibility. Oscar Babcock has found one in New York which he says is all right. This is overhanging at the rear as is a motor tandem, and the rider must carry his weight well forward as was done on the broncho type of safety, or have his front wheel in the air.

It seems to be an assured fact now that the National Cycling Association will limit motor tandems to $2\frac{1}{4}$ horsepower for regular contests, requiring a special sanction for contests between machines of greater horsepower, but requiring that in all races the machines be of equal as regards the motor. The sport will be improved by requiring this equality. The racing men themselves will then be brought into the game prominently as their speed will count as much as in unpaced races. The argument has been raised that fraud might be practiced in the motors, but this is scarcely a valid one. Chairman Batchelder of the board of control says that in making such a rule provisions for severe punishment will be made for those riders guilty of fraud. The riders themselves have the right at all times to enter a protest against a competitor and insist upon an examination. The power of the motor is easily determined then by an experienced mechanic. This limitation applies only to the gasoline motors as the horsepower of a steam machine may develop much more than horsepower for a limited time.



WE MANUFACTURE

SPROCKET WHEELS

in all sizes and
thickness, for any
pitch chain;
also miscellaneous
parts for



**Bicycles and
Automobiles***

PETER FORG, - SOMERVILLE, MASS.

SPOKES SPOKES

We manufacture Spokes for
AUTOMOBILES

EXCELSIOR NEEDLE CO., Torrington, Conn.

WESTERN OFFICE, 204 LAKE ST., CHICAGO

**AUTOMOBILE
WOOD RIMS!**

28-inch to 36-inch for 2 inch to 4-inch Tires

FAIRBANKS-BOSTON RIM CO., Bradford, Pa.

Gasoline Engines!

OPPOSED CYLINDERS,
BALANCED TYPE.

Latest, Most Compact Design for Vehicles & Launches
4 to 12 H. P. : Blue Prints, \$1.

A. W. KING, 71 W. Jackson St., Chicago, Ill

STEELMADE IN ALL
SIZES

15 years'
practical experience

BALLS

Also Manufacturers of Machinery.

Write for
Prices

GRANT BALL CO., Cleveland, O.

The Motor Age is the most liberally
quoted by foreign Motor Vehicle
papers of any American publication

**That Means
Merit**

A BRITISH SYNDICATE
desires the *exclusive agency*
for Great Britain for one or more
fully-developed

Motor Vehicles

preferably of the *gasoline* type.

Would consider nothing of an
experimental nature or made
by a concern unable to *guarantee*
prompt shipments.

Headquarters in London.

Address preliminary corre-
spondence to

SYNDICATE,
Care Motor Age,
Monon Bldg.,
Chicago.



PUMPS FOR AUTOBOMB AND PNEUMATIC WAGON TIRES.

GLEASON-PETERS AIR PUMP CO. Mercer & Houston Sts. New York, U. S. A.